

ABSTRACT OF THE DISCLOSURE

A photosensor assembly has at least one line array of photosensors with a first sensor size, and at least one line array of photosensors with a second sensor size, with the two sizes being different. In an example embodiment, for every band of wavelengths being sensed, there are two line arrays of sensors, with one line array having relatively small sensor areas and the other line array having relatively large sensor areas. The line arrays with relatively small sensor areas are used for high native input sampling rates, and the line arrays with relatively large sensor areas are used for high color accuracy and speed. To minimize cost and circuit area, each line array of sensors having large sensor areas shares a charge shift register with a line array of sensors having small sensor areas. If overflow drains are present, some pairs of sensor line arrays may also share overflow drains.